The North Dakota
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Newsletter of the North Dakota State Seed Department

Inside

North Dakota State
NDSSD
Seed Department

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Research Fees – A Solid Return on Investment

Steve Sebesta, *Deputy Commissioner*

Wheat research plots located at NDSU's research station near Prosper.

In 2004 North Dakota State University released its first hard red spring wheat variety with a research fee attached to the sales of planting seed, Steele–ND. That variety marked a new era for funding plant breeding research programs at NDSU.

Prior to 2004 public plant breeders relied on general funds, check-off dollars, contributions and grants. While all of those sources of funding are still important, the contribution of research fees has grown tremendously and is now paying dividends to wheat producers statewide.

According to ND Ag Statistics Service figures for 2009, four of the top six varieties planted on North Dakota's 6.7 million acres of hard red spring wheat were NDSU varieties. Steele-ND was still among those top varieties, but most significantly, the other three varieties were released since 2004. In fact, the top two varieties, Glenn (released in 2005) and Faller (released in 2007), were planted on more than a third of the acres. Another new cultivar, Barlow was released in 2009 and Registered class seed was produced by ND Crop Improvement & Seed Association growers this year. Moreover, seven of the top ten wheat varieties in 2009 were released in 2004 or later. These varieties, originating from public and private programs, demonstrate the huge dividend of increased research funding.

Other NDSU breeding programs also benefit from research fees collected on varieties including durum, malting barley, edible beans, flax, oat and soybean. The three most recent durum cultivars, released in 2005, were planted on more than a third of all durum acres this year. Stellar-ND, the first NDSU barley with a research fee, ranks fourth among malting barley varieties in 2009.

Benefits of additional research funding include:

- New equipment to improve breeding methodology
- Winter nurseries to advance breeding lines faster
- Technical support staff to improve program efficiency and capability
- Disease and insect screening to improve variety adaptability
- Quality evaluation to enhance variety utility and market acceptance

Revenues generated from research fees don't just benefit research programs, they also benefit producers. New varieties pay dividends to producers in higher yields, improved disease or insect tolerance and improved quality traits. Those characteristics also pay dividends throughout North Dakota's economy as well. Over the last five years public and private breeding programs have introduced 31 new wheat varieties, ten new durum varieties, nine new oat varieties, six new barley varieties into North Dakota.

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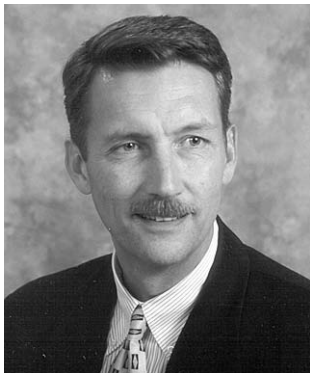

From the Commissioner's Desk

So Much for Global Warming

It is the first week of August and I don't remember the last time we have had a month with above-average temperatures. I'm reminded by those close to me that my memory is not what it used to be, but it seems like we have been in a cold streak for a long time. Not ON a cold streak, like my golf game…IN one regarding the weather.

Anyone who lives here understands weather extremes, I don't need to list all of the various temperature and precipitation issues Dakotans deal with (ok, Minnesotans and Montanans too). As agriculturalists, climate is the single most important influence on our business; having some control over temperature and rainfall factors would be a godsend. Since that is unlikely, dealing with climatic influences from another direction is the only choice we have.

I read recently, with great interest, of Monsanto's acquisition of WestBred and the company's wheat genetics. Syngenta, Bayer Crop Science, BASF, Dow… now Monsanto. Nearly every major player in biotechnology now has some level of interest or enterprise in wheat. If public opinion and regulatory barriers were reduced, and public institutional partnerships could be ramped up…the possibilities seem endless.

Cold tolerance, drought tolerance, nitrogen efficiency, disease resistance… all of these issues are shaped in some way by climate. All of them influenced (potentially) in some way by biotechnology. We may not be able to change the weather, but we might be able to change how the plant reacts to it.

Disclaimer: These statements are not intended as pro-biotechnology in any way shape or form. They are intended solely to make a point, which is forthcoming. Really.

Looking across the landscape of agriculture and the seed industry an issue is becoming apparent. Wheat is falling behind other crops in terms of advancement. Yield and disease resistance factors in wheat are not keeping pace by comparison to other major crops grown in this region. Most of the improvements in corn and soybean are biotech related. Producers are switching from wheat to alternative crops. These statements are all beyond argument, and while you can argue the biotech/non-biotech issues until blue-faced…you can't deny that wheat production is declining in many areas of North Dakota.

I can't argue with those that believe we need a biotech boost for the wheat industry. I refuse to argue with those that don't want biotechnology in wheat or other cereals; there are hundreds of opinions pro and con. I will, however, make this statement: I sure wish we could grow more wheat, so farmers could make a better living while feeding more people. The long-term viability and stability of agriculture in this region is grounded in the production of cereal crops. The world needs more food; an infusion of new technology is necessary, like it or not.

Public acceptance, food safety and all the other conflict areas aside, the barriers to transgenic research in wheat and other cereal crops seem to be lowering to some extent. Those hurdles will be leapt in wheat as they have in corn, soybean, sugar beet and other crops. When you read about the global industry moving toward "synchronized commercialization" of biotech traits in wheat, you must believe that the process has begun. And none too soon.

I love to work with the variety of crops and growers that we serve; it certainly keeps work interesting and exposes me to great people. The potato side of our business and the people involved are great; but at the end of the day, I'm a grain guy…always have been and always will be. Watching any kind of decline in the production of wheat (or any cereal crop) is not what I want to do.

The latest acquisition news appears to be another sign that the decline could, someday, be reversed.

Short-term evidence suggests that the global warming hysteria may be overblown, but if not, we could well be the Iowa of the North (crop-wise) without some sort of man-made assist in the battle with Mother Nature.

Best wishes for a safe and profitable harvest season.

Ken Bertsch..... State Seed Commissioner
Steve Sebesta..... Deputy Seed Commissioner
Willem Schrage ..... Director, Potato Program
Joe Magnusson.....Seed Regulatory Manager
Galen Briese.....Seed Certification Manager
Mark Hafdahl .....Seed Laboratory Manager
Jeff Prischmann.....Diagnostic Laboratory Manager
Kris Nicklay..... Administrative Officer
Mike Oosterwijk .....Potato Program Supervisor

Research Fees continued from page 1

Obviously, agriculture is extremely important to North Dakota's economic well-being. With more than 26 million acres in cropland, North Dakota ranks fourth in the U.S. North Dakota ranks number one in the production of ten crops and leads the nation in the number of acres of certified seed production. The value created from increased productivity generated by agricultural research conducted in this state is enormous.

So, as the deadline for payment of research fees nears, remember that return on investment generated by those funds.

Wheat Variety Identification Testing

Jeff Prischmann, *Diagnostic Lab Manager*

Wheat is an important crop that has specific quality parameters based on class or type. Several classes or types of wheat exist. In the U.S., there are six major classes of wheat including hard red spring, hard red winter, soft red winter, durum, hard white, and soft white. The quality parameters inherent in each class can narrow the available germplasm base breeders use in developing new varieties. The genetic similarity of parental lines used in crosses can make it difficult to distinguish varieties. This is especially true in durum wheat.

Traditional seed characteristics such as kernel shape or size may not always be adequate to distinguish wheat varieties. Since 1995, the Diagnostic Lab at the North Dakota State Seed Department has conducted variety identification testing of wheat varieties using seed protein and visualization using gel electrophoresis. This test is able to differentiate a large portion of wheat varieties from each other based on a specific seed protein banding pattern that is unique to that variety. This test does have some limitations. Wheat varieties developed from a narrow germplasm base are difficult to distinguish using this test. This includes many durum varieties and some varieties of spring wheat originating from the same breeding program.

With an increase in the acreage of winter wheat grown in the state, we have had an increase in the number of questions regarding the lab's ability to determine whether a wheat sample is a spring wheat or winter wheat variety. We can conduct testing in two different ways. The first method involves using a traditional seed protein electrophoresis test. This test can determine whether a variety of wheat is the correct variety or a mixture. Initial tests on wheat are usually conducted on a bulk seed sample. However, there may be some samples that require individual seed to be tested. This would be required to determine a percentage mixture. Generally, samples containing as little as 5% mix of a second variety can be detected using this test. In the majority of cases, this test should be adequate. However, this test does not verify the winter or spring growth habit of a variety, just that the sample is a match to a known variety. In this case, a second method can be employed. This test uses PCR (polymerase chain reaction) in combination with a specific marker for the gene controlling vernalization in wheat, a characteristic distinguishing winter from spring growth habit. This test can specifically determine whether a sample is winter or spring wheat.

Customers interested in these tests must submit a 100g sample and request a variety identification test. Any sample information the customer can provide the lab regarding the sample is important. This information helps narrow the possible varieties for the unknown sample and gives the lab a starting point. Information such as the suspected variety, type of wheat, etc. are all important. Please contact the department with any questions regarding variety identification testing of wheat in order to best determine the correct test for your particular situation.

New Staff

Ciara Clark began work at the department June 15 as a seed analyst. Ciara is a 2009 graduate of NDSU. She is originally from Cooperstown and has a farm background. In addition to her lab responsibilities, Ciara will also inspect seed fields. Ciara understands the importance of agriculture to North Dakota and is eager to apply her customer service skills to the Seed Lab.

Seed Potato Tags

Beginning in the fall of 2009 ND seed potato tags will only be available for seed potatoes that are shipped in bags.

Bulk certificates will be available for bulk loads, including totes. The details on the bulk certificate will be the responsibility of the grower/shipper. The grower is expected to fill in the name of the grower, winter testing, application number(s), shipping point inspection certificate numbers with grade, or simply white tag. Bulk certificates will be in duplicate. The copy can be for the grower's record and/or be used as an affidavit in cases where seed potatoes have been shipped within state without inspection. Certificates will be available from the Fargo and Grafton offices or your inspector. There is no cost for the bulk certificates.

Identification tags will be made available for people who indicate a need for them. Details on these tags will also be the responsibility of the grower.

Conditioner and Retailer Applications due October 1

Applications for Approved Certified Seed Conditioners and Bulk Retailers were mailed to facility managers in August. Completed applications and the fee should be returned to the department by October 1. Facility inspections will begin the last part of October. At that time inspectors will review the requirements of the agreement with facility managers, approved samplers and any other employees that handle certified seed. As always, we appreciate your cooperation with the inspectors.

Seed Shipments to Canada

Canada has different paperwork requirements for seed to be admitted into that country. The major differences are the quantities examined and the noxious weeds that we look for. Seed shipments that are accompanied by one of our normal analysis reports will be delayed at the border until the proper testing can be completed. To prevent this from happening contact Mark Hafdahl in the Seed Lab so that we can do the proper testing and provide an analysis report that will satisfy the Canadian authorities.

ND Seed Potato Field Inspection Training

Willem Schrage, *Potato Program Director*

The ND State Seed Department takes pride in the expertise of its potato inspectors. Seed potato inspectors need at least three seasons of in-field training before inspecting independently. Visual observation of symptoms is still the mainstay of seed potato certification. Laboratory testing is a tool to help determine the disease content of seed lots of potential symptomless carriers. Lab testing is also used to confirm the visual observations of inspectors. Changes in disease causing organisms such as viruses, and the development of new varieties, some of which are potential symptomless carriers, have made field inspection more challenging.

The State Seed Department utilizes a field plot as a primary variety and disease training tool each year. Potato Supervisor, Mike Oosterwijk collects tubers from diseased plants and other tubers from the most important varieties each year. These tubers are planted in a disease plot alongside an NDSU research nursery within a grower's field. Dr. Susie Thompson and Dr. Nick David of NDSU have been very cooperative in helping to plant the so-called "disease plot" which was located at Oberg's Farm in Hoople. The disease plot is a good example of cooperation between university and industry. This disease plot and the training of the inspectors is an initiative of Oosterwijk. It takes planning and attention to detail to have a successful plot each year.

In spite of all the planning, weather can cause problems with timing. The cool spring delayed plant growth, which hampered efforts to have the field-day before the inspection season started. Excessive rainfall also hurt the disease plot.

The Northern Plains Potato Growers Association now has an irrigated research plot at the Forest River Hutterite Colony. This season Dr. David had trials with the newest available potato varieties and invited State Seed potato inspectors to utilize this plot for training. This irrigated plot proved to be earlier than the crop in Hoople, which would be beneficial for inspector training in the future.

Harvest, Storage and Testing

Galen Briese, *Certification Manager*

Harvest time is a hectic period under normal conditions. Considering the growing season we have had this year, harvest may be more chaotic than normal. That makes preparation even more important to ensure your efforts in producing a seed crop aren't accidently spoiled. Harvesting certified seed requires additional precautions.

Combine cleaning is just one of the automatic processes that all producers need to do when changing fields. It must be done between different varieties and crops to prevent contamination issues. Do not forget to clean the trucks, grain carts and augers. These also can be areas of contamination. Make sure the bins are cleaned and labeled for each variety. Discuss the importance of these procedures with your employees. Make sure everyone understands the importance of cleaning equipment.

Do not assume that the field has been inspected before harvesting. Do not harvest unless you know the field has been inspected! Make sure that you read the field inspection reports and check the report for any problems that the inspector has found in the field and follow instructions that are on the report. Do not ignore this paperwork! A copy of the inspection report should be provided to the conditioner when the seed is conditioned for final certification.

Do not refill bins that contain leftover seed from last year, you are increasing your chances of admixtures and germination problems, so empty and thoroughly clean and label each storage facility. Accidental comingling of different varieties is costly. Proper bin labeling can help prevent this problem.

Periodically check your bins to make sure the seed is storing well, especially if harvested at high moisture and air is used to dry it. This may be a source of spoiled seed and low germination. If you pre-germ the seed early in the year, it is advisable to re-germ when sent in for final certification. Germination can drop significantly if bin conditions are less than acceptable. Remember, pre-germination results can't be used for final certification with fragile seed, such as soybeans, peas, and edible beans.

Remember good quality seed is what establishes your reputation as a seed producer and retailer.

Unconditioned Carryover Reports due October 1

According to seed certification regulations, seed growers are required to submit an annual report of **unconditioned** seed produced the previous year in order to maintain eligibility of that seed for final certification.

Carryover certified seed does not need to be reported, however, a new sample must be submitted to the department for a new germination test to ensure it meets labeling requirements.

Staff Recognized for Service

The success of any organization depends on its employees. Professionalism, technical competence, leadership and dedication to customer service are just some of the traits we value in our employees. Experience plays an important role in development of these traits and the department is fortunate to retain experienced professionals. Several department employees were recognized for their service at a recent staff meeting. They include:

Jeff Prischmann .. Diagnostic Lab Manager, 20 years
Laurie Allmaras ... Administrative Support, 15 years
Deb Schmidt..... Administrative Support, 10 years
Galen Briese ..... Certification Manager, 10 years
Sue Merkens ..... Diagnostic Lab Specialist, 10 years

Final Soybean Inspections Underway Soon

Soybean harvest will soon be underway and we understand the desire to harvest as soon as possible. However, seed growers are reminded that **pre-harvest inspections must be completed before harvest**. We make every effort to communicate regularly with seed growers to avoid any problems during this busy time. Regulations require that final inspections be made when the crop is approaching maturity. We begin when the crop has dropped 85% of its leaves. This allows inspectors to accurately determine the colors of the pubescence, pods and hila, which are factors used in determining varietal purity. **Growers should call the office when your seed fields are at 50-75% leaf drop.** This will allow us to plan inspections more efficiently and serve you better.

Research Fees due September 15

Research fees are due September 15 for all seed sold for planting purposes between July 1, 2008 and June 30, 2009. Report forms were mailed to all labelers in July. If you have not sent your payment to the Seed Department yet, please do so immediately.

Labelers are responsible for seed that has completed final certification and has been labeled in their name.

Do not pay your county crop improvement or ag association. The only way we can correctly reconcile your account is if the report form and check are sent directly to the Seed Department. Research fee reports must be returned even if no sales occurred.

Send payment only to the Seed Department to ensure your account is properly reconciled and you receive credit for payment. Thanks to those of you who have already paid your fees.

Seed Regulatory Report

Joe Magnusson, *Regulatory Manager*

2009 Regulatory Inspections

All seed exposed, offered or transported for sale to the public must be truthfully and properly labeled and represented. The Regulatory Program is responsible for collecting samples from seed dealers and vendors, analyzing the seed and comparing the results to what is stated on the label. If a discrepancy is found, a "Stop Sale" order is issued and the product must be relabeled correctly or removed from sale.

The Regulatory inspection team drew 1,748 samples for truth in labeling testing. "Stop Sale" orders were issued on 109 seed lots that were improperly labeled or found to be out of tolerance with label claims. The following is a breakdown of the "Stop Sales" issued:

Out of date labels 44
Excess inert matter..... 23
Low germination 19
Incomplete labels..... 9
Excess other crop..... 6
Wrong variety 5
Excess noxious weeds 3

We found 25 certified seed samples which were out of tolerance with ND certification standards: 14 for excess other crop, eight for excess weed seed and three for excess noxious weeds. Most of these were the result of not thoroughly cleaning the bins prior to filling with certified seed.

We found five samples of wheat that did not test true to variety due to contamination or mislabeled bins.

Seed Labeling Permits

Any person or business that labels seed in North Dakota must have a Seed Labeling Permit, report seed sales and submit a fee annually to the State Seed Department. According to our records there are a number of certified seed growers and nonresident seed dealers that do not have a permit to sell seed in this state. An application for a permit will be sent to growers that certified and labeled seed for sale in 2008 to bring them into compliance.

The annual reporting form for seed sales was sent to permit holders June 24 and should have been returned by August 1. If you have not returned your form, please do so as soon as possible. The reporting form must be returned even if no sales were made during the reporting period. If you do not sell seed and wish to cancel your permit, check the appropriate box at the top of the form and return to our office. A late fee applies on forms that are returned after August 1. A second notice and reporting form will be sent in September. If you do not send the reporting form back to our office we will cancel your permit and you will not be able to certify and sell seed in North Dakota.

North Dakota State Seed Department
State University Station
P.O. Box 5257
Fargo, ND 58105-5257

ADDRESS SERVICE REQUESTED

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Permit No. 229

NDSSD Calendar

Sept. 15 ..... Research fees due

Sept. 15-17 .. Big Iron Farm Show, West Fargo

Oct. 1..... Unconditioned Carryover Seed Report due

Oct. 1 ..... Applications due for approved seed conditioners and bulk retailers

Dec. 1-2..... ND Ag Association Northern Ag Expo, Fargodome

Dec. 8..... SW District Crop Improvement Association, Dickinson

Dec. 9..... NW District Crop Improvement Association, Minot

Dec. 10..... NE District Crop Improvement Association, Lakota

Dec. 11..... SE District Crop Improvement Association, Cassleton